



[illegible]

```
1 0001 0 MODULE COM$ERRSET_TST (XTITLE'FORTRAN compatibility error set and test'
2 0002 0 IDENT = '1-024' ! File: COMSETST.B32 Edit: SBL1024
3 0003 0 ) =
4 0004 1 BEGIN
5 0005 1
6 0006 1 *****
7 0007 1 *
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25 0025 1 *
26 0026 1 *
27 0027 1 *****
28 0028 1
29 0029 1
30 0030 1 ++
31 0031 1 FACILITY: FORTRAN compatibility Library
32 0032 1
33 0033 1 ABSTRACT:
34 0034 1
35 0035 1 FORTRAN compatibility error set and test and condition handler.
36 0036 1 FOR$COM_HANDLE performs default error handling
37 0037 1 which creates an environment compatible with the PDP-11
38 0038 1 FORTRAN IV-PLUS error environment.
39 0039 1 This environment is only created if the user has a:
40 0040 1 CALL ERRST or CALL ERRSET in his program.
41 0041 1
42 0042 1 ENVIRONMENT: User Mode - AST re-entrant
43 0043 1
44 0044 1 AUTHOR: Thomas N. Hastings, CREATION DATE: 14-Dec-1977
45 0045 1
46 0046 1 MODIFIED BY:
47 0047 1
48 0048 1 Thomas N. Hastings, 14-Dec-1977: VERSION 0
49 0049 1 [Previous edit history removed. SBL 11-Nov-1980]
50 0050 1 1-13 - Change file name to COMSETST.B32, and change the names of
51 0051 1 the REQUIRE files similarly. JBS 14-NOV-78
52 0052 1 1-014 - Update the copyright notice. JBS 16-NOV-78
53 0053 1 1-015 - Change the REQUIRE file names from FOR... to OTS... JBS 07-DEC-78
54 0054 1 1-016 - Add error numbers 49-57. SBL 09-Feb-1979
55 0055 1 1-017 - Rename errors 36, 50. SBL 6-Apr-79
56 0056 1 1-018 - Change error 93 to allow continuation. SBL 25-May-1979
57 0057 1 1-019 - Correct a typo in the PSECT declaration that was not caught by
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: 58      0058 1 !      earlier BLISS compilers. Also, remove unnecessary REQUIRE
: 59      0059 1 !      files and put through PRETTY. JBS 06-SEP-1979
: 60      0060 1 ! 1-020 - Change MTH$K_SINCOSSIG to MTH$K_SIGLOSMAT. JBS 19-SEP-1979
: 61      0061 1 ! 1-021 - Add handling of floating faults. Update names of error
: 62      0062 1 !      codes to match latest list. SBL 20-Nov-1979
: 63      0063 1 ! 1-022 - Add errors 17-19. SBL 11-Nov-1980
: 64      0064 1 ! 1-023 - Don't change severity of non-FORTRAN errors. SPR 11-46349
: 65      0065 1 !      SBL 16-June-1982
: 66      0066 1 ! 1-024 - Add call to FOR$$INIT_ERRSET to notify shared RTL that it should
: 67      0067 1 !      record errors in our tables. SBL 29-Jun-1983
: 68      0068 1 ! --
: 69      0069 1 !
: 70      0070 1 !<BLF/PAGE>

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```
72 0071 1 |
73 0072 1 | SWITCHES:
74 0073 1 |
75 0074 1 |
76 0075 1 | SWITCHES ADDRESSING_MODE (EXTERNAL = GENERAL, NONEXTERNAL = WORD_RELATIVE);
77 0076 1 |
78 0077 1 |
79 0078 1 | TABLE OF CONTENTS:
80 0079 1 |
81 0080 1 |
82 0081 1 | FORWARD ROUTINE
83 0082 1 |     COM_STARTUP,           ! Compatibility startup routine
84 0083 1 |     COM_HANDLER,          ! FORTRAN compatibility error handler
85 0084 1 |     RECORD_ERROR: NOVALUE; ! Record an error number
86 0085 1 |
87 0086 1 |
88 0087 1 | INCLUDE FILES:
89 0088 1 |
90 0089 1 |
91 0090 1 | LIBRARY 'RTLSTARLE';      ! STARLET library for macros and symbols
92 0091 1 |
93 0092 1 | REQUIRE 'RTLIN:COMEST';   ! Common ERRST, ERRSET macros
94 0161 1 |
95 0162 1 | REQUIRE 'RTLML:FORERR';   ! FORTRAN error numbers
96 0230 1 |
97 0231 1 | REQUIRE 'RTLIN:RTLPSECT'; ! Define DECLARE_PSECTS macro
98 0326 1 |
99 0327 1 | REQUIRE 'RTLML:MTHERR';   ! Math library error numbers
100 0343 1 |
101 0344 1 |
102 0345 1 | MACROS:
103 0346 1 |
104 0347 1 |     NONE
105 0348 1 |
106 0349 1 | EQUATED SYMBOLS:
107 0350 1 |
108 0351 1 |
109 0352 1 | LITERAL
110 0353 1 |     S_SEVERITY = 3,       ! size of condition value severity field
111 0354 1 |     K_ERROR_LIMIT = 15;   ! initial image error count limit
112 0355 1 |
113 0356 1 |
114 0357 1 | OWN STORAGE:
115 0358 1 |
116 0359 1 |     NONE
117 0360 1 |
118 0361 1 | PSECT DECLARATIONS:
119 0362 1 |
120 0363 1 |
121 0364 1 | PSECT
122 0365 1 |     PLIT = LIB$INITIALIZE ( READ, NOWRITE, NOEXECUTE, NOSHARE, NOPIC, CONCATENATE, GLOBAL, ALIGN (2),
123 0366 1 |     ADDRESSING_MODE (GENERAL));
124 0367 1 |
125 0368 1 | !+
126 0369 1 | ! Make LIB$INITIALIZE PSECT contribution so LIBINITIALIZE will call
127 0370 1 | ! COM_STARTUP which will setup default handler and co-routine back.
128 0371 1 | ! Don't use LIB$INITIALIZD_ PSECT, since that for Common Run-time library standard features.
```

```
129 0372 1 !-
130 0373 1
131 0374 1 BIND
132 0375 1 VECT = UPLIT (COM_STARTUP);
133 0376 1
134 0377 1 !+
135 0378 1 ! Now declare usual PSECTS
136 0379 1 !-
137 0380 1 DECLARE_PSECTS (F4PCOMPAT); ! declare PSECTS for F4PCOMPAT$ facility
138 0381 1 ! Keep separate from sharable library
139 0382 1
140 0383 1 GLOBAL
141 0384 1 COM$ERRORCOUNT : INITIAL (K_ERROR_LIMIT) VOLATILE; ! Image error count limit.
142 0385 1
143 0386 1 ! Decrement by COM_HANDLER.
144 0387 1 ! EXIT on continuable error if 0.
145 0388 1 !+
146 0389 1 Define FORTRAN compatibility error byte table
147 0390 1 One byte per FORTRAN error number.
148 0391 1 !-
149 0392 1 Define macro to generate byte data for initializing OWN COM$ERR_TAB.
150 0393 1 !-
151 0394 1
152 0395 1 MACRO
153 0396 1 A (OCCURRED, ! error occurred since last CALL ERRST
154 0397 1 EREQ_ALLOW, ! ERR= allowed
155 0398 1 CONT_ALLOW, ! continue allowed
156 0399 1 LOG, ! print error message
157 0400 1 CONT_TYPE, ! 1 = take ERR= if present, else EXIT; 0 = continue
158 0401 1 COUNT, ! count against image limit
159 0402 1 CONTINUE ! 1 = continuable (or ERR=), 0 = EXIT
160 M 0403 1 ) =
161 M 0404 1 (OCCURRED^7 + EREQ_ALLOW^6 + CONT_ALLOW^5 +
162 0405 1 LOG^3 + CONT_TYPE^2 + COUNT^1 + CONTINUE) %;
163 0406 1
164 0407 1 !+
165 0408 1 ! Statically allocate a byte table, one byte for each FORTRAN error number
166 0409 1 ! Each byte contains the error control status bits.
167 0410 1 !-
168 0411 1
169 0412 1 GLOBAL
170 0413 1 COM$ERR_TAB : BLOCKVECTOR [FOR$K_MAX_ERR + 1, 1, BYTE] INITIAL (BYTE (
171 0414 1
172 0415 1 !+
173 0416 1 O C E L C C C
174 0417 1 C R O G N N C
175 0418 1 C E N T I N T
176 0419 1 U R Q T I N T
177 0420 1 R E D A A T I N
178 0421 1 E L L T P U
179 0422 1 D L L O E E
180 0423 1 W W
181 0424 1 !-
182 0425 1
183 0426 1
184 0427 1
185 0428 1 0, ! 0
```



186	0429	1	A(0,1,0,1,1,1,1),	NOTFORSPE,	1	! NOT A FORTRAN-SPECIFIC ERROR
187	0430	1		Used as a catch-all error number		
188	0431	1		for error other than FOR\$ and MTH\$		
189	0432	1	REP 17-1-1 OF BYTE (0),	skip 2-16		
190	0433	1	A(0,1,0,1,1,1,1),	SYNERRNAM,	17	! SYNTAX ERROR IN NAMELIST
191	0434	1	A(0,1,0,1,1,1,1),	TOOMANVAL,	18	! TOO MANY VALUES IN NAMELIST
192	0435	1	A(0,1,0,1,1,1,1),	INVREFVAR,	19	! INVALID REFERENCE TO VARIABLE
193	0436	1	A(0,1,0,1,1,1,1),	REWERR,	20	! REWIND ERROR
194	0437	1	A(0,1,0,1,1,1,1),	DUPFILSPE,	21	! DUPLICATE FILE SPECIFICATIONS
195	0438	1	A(0,1,0,1,1,1,1),	INPRECTOO,	22	! INPUT RECORD TOO LONG
196	0439	1	A(0,1,0,1,1,1,1),	BACERR,	23	! BACKSPACE ERROR
197	0440	1	A(0,1,0,1,1,1,1),	ENDDURREA,	24	! END-OF-FILE DURING READ
198	0441	1	A(0,1,0,1,1,1,1),	RECNUMOUT,	25	! RECORD NUMBER OUTSIDE RANGE
199	0442	1	A(0,1,0,1,1,1,1),	OPEDEFREQ,	26	! OPEN OR DEFINEFILE REQUIRED TO SPECIFY DIRECT OR K
200	0443	1	A(0,1,0,1,1,1,1),	TOOMANREC,	27	! TOO MANY RECORDS IN I/O STATEMENT
201	0444	1	A(0,1,0,1,1,1,1),	CLOERR,	28	! CLOSE ERROR
202	0445	1	A(0,1,0,1,1,1,1),	FILNOTFOU,	29	! FILE NOT FOUND
203	0446	1	A(0,1,0,1,1,1,1),	OPEFAI,	30	! OPEN FAILURE
204	0447	1	A(0,1,0,1,1,1,1),	MIXFILACC,	31	! MIXED FILE ACCESS MODES
205	0448	1	A(0,1,0,1,1,1,1),	INVLOGUNI,	32	! INVALID LOGICAL UNIT NUMBER
206	0449	1	A(0,1,0,1,1,1,1),	ENDFILERR,	33	! ENDFILE ERROR
207	0450	1	A(0,1,0,1,1,1,1),	UNIALROPE,	34	! UNIT ALREADY OPEN
208	0451	1	A(0,1,0,1,1,1,1),	SEGRECFOR,	35	! SEGMENTED RECORD FORMAT ERROR
209	0452	1	A(0,1,0,1,1,1,1),	ATTACNON,	36	! ATTEMPT TO ACCESS NON-EXISTENT RECORD
210	0453	1	A(0,1,0,1,1,1,1),	INCRECLEN,	37	! INCONSISTENT RECORD LENGTH
211	0454	1	A(0,1,0,1,1,1,1),	ERRDURWRI,	38	! ERROR DURING WRITE
212	0455	1	A(0,1,0,1,1,1,1),	ERRDURREA,	39	! ERROR DURING READ
213	0456	1	A(0,1,0,1,1,1,1),	RECIO OPE,	40	! RECURSIVE I/O OPERATION
214	0457	1	A(0,1,0,1,1,1,1),	INSVIRMEM,	41	! INSUFFICIENT VIRTUAL MEMORY
215	0458	1	A(0,1,0,1,1,1,1),	NO SUCDEV,	42	! NO SUCH DEVICE
216	0459	1	A(0,1,0,1,1,1,1),	FILNAMSPE,	43	! FILE NAME SPECIFICATION ERROR
217	0460	1	A(0,1,0,1,1,1,1),	INRECTYP,	44	! INCONSISTENT RECORD TYPE
218	0461	1	A(0,1,0,1,1,1,1),	KEYVALERR,	45	! KEYWORD VALUE ERROR IN OPEN STATEMENT
219	0462	1	A(0,1,0,1,1,1,1),	INCOPECLO,	46	! INCONSISTENT OPEN/CLOSE PARAMETERS
220	0463	1	A(0,1,0,1,1,1,1),	WRIREFIL,	47	! WRITE TO READONLY FILE
221	0464	1	A(0,1,0,1,1,1,1),	INVARGFOR,	48	! INVALID ARGUMENT TO FORTRAN I/O LIBRARY
222	0465	1	A(0,1,0,1,1,1,1),	INVKEYSPE,	49	! INVALID KEY SPECIFICATION
223	0466	1	A(0,1,0,1,1,1,1),	INCKEYCHG,	50	! INCONSISTENT KEY CHANGE OR DUPLICATE KEY
224	0467	1	A(0,1,0,1,1,1,1),	INCFILORG,	51	! INCONSISTENT FILE ORGANIZATION
225	0468	1	A(0,1,0,1,1,1,1),	SPERECLOC,	52	! SPECIFIED RECORD LOCKED
226	0469	1	A(0,1,0,1,1,1,1),	NO CURREC,	53	! NO CURRENT RECORD
227	0470	1	A(0,1,0,1,1,1,1),	REWRITERR,	54	! REWRITE ERROR
228	0471	1	A(0,1,0,1,1,1,1),	DELERR,	55	! DELETE ERROR
229	0472	1	A(0,1,0,1,1,1,1),	UNLERR,	56	! UNLOCK ERROR
230	0473	1	A(0,1,0,1,1,1,1),	FINERR,	57	! FIND ERROR
231	0474	1	0,	Unused: 58		
232	0475	1	A(0,1,1,1,1,0,1),	LISIO SYN,	59	! LIST-DIRECTED I/O SYNTAX ERROR
233	0476	1	A(0,1,0,1,1,1,1),	INFFORLOO,	60	! INFINITE FORMAT LOOP
234	0477	1	A(0,1,1,1,1,1,1),	FORVARMIS,	61	! FORMAT/VARIABLE-TYPE MISMATCH
235	0478	1	A(0,1,0,1,1,1,1),	SYNERRFOR,	62	! SYNTAX ERROR IN FORMAT
236	0479	1	A(0,1,1,1,0,0,1),	OUTCONERR,	63	! OUTPUT CONVERSION ERROR
237	0480	1	A(0,1,1,1,1,1,1),	INPCONERR,	64	! INPUT CONVERSION ERROR
238	0481	1				
239	0482	1	0,	! skip 65		
240	0483	1				
241	0484	1	A(0,1,0,1,1,1,1),	OUTSTAOVE,	66	! OUTPUT STATEMENT OVERFLOWED RECORD
242	0485	1	A(0,1,0,1,1,1,1),	INPSTAREQ,	67	! INPUT STATEMENT REQUIRED TOO MUCH DATA

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243 0486 1 A(0,1,1,1,1,1), ! VFEVALERR, 68 ! VARIABLE FORMAT EXPRESSION VALUE ERROR
244 0487 1
245 0488 1 0, ! skip 69
246 0489 1
247 0490 1 A(0,0,1,1,0,1,1), ! INTOVF, 70 ! INTEGER OVERFLOW
248 0491 1 A(0,0,1,1,0,1,1), ! INTZERDIV, 71 ! INTEGER ZERO DIVIDE
249 0492 1 A(0,0,1,1,0,1,1), ! FLOOVE, 72 ! FLOATING OVERFLOW
250 0493 1 A(0,0,1,1,0,1,1), ! FLOZERDIV, 73 ! FLOATING ZERO DIVIDE
251 0494 1 A(0,0,1,1,0,1,1), ! FLOUND, 74 ! FLOATING UNDERFLOW
252 0495 1
253 0496 1 0, ! skip 75
254 0497 1
255 0498 1 A(0,0,1,1,0,1,1), ! DECSTROVE, 76 ! DECIMAL STRING OVERFLOW
256 0499 1 A(0,0,1,1,0,1,1), ! ARRREFOUT, 77 ! ARRAY REFERENCE OUTSIDE ARRAY
257 0500 1
258 0501 1 0,0, ! skip 78, 79
259 0502 1
260 0503 1 A(0,0,0,1,0,1,1), ! WRONUMARG, 80 ! wrong number of arguments
261 0504 1 A(0,0,0,1,0,1,1), ! INVARGMTH, 81 ! invalid argument to math library
262 0505 1 A(0,0,1,1,0,1,1), ! UNDEXP, 82 ! undefined exponentiation
263 0506 1 A(0,0,1,1,0,1,1), ! LOGZERNEG, 83 ! logarithm of zero or negative value
264 0507 1 A(0,0,1,1,0,1,1), ! SQUROONEG, 84 ! square root of negative value
265 0508 1
266 0509 1 0, 0, ! Skip 85 and 86 (used on PDP-11),
267 0510 1
268 0511 1 A(0,0,1,1,0,1,1), ! SIGLOSMAT, 87 ! significance lost in math library
269 0512 1 A(0,0,1,1,0,1,1), ! FLOOVEMAT, 88 ! floating overflow in math library
270 0513 1 A(0,0,1,1,0,1,1), ! FLOUNDMAT, 89 ! floating underflow in math library
271 0514 1
272 0515 1 REP 93-89-1 OF BYTE (0), ! skip 90-92
273 0516 1
274 0517 1
275 0518 1 A (0, 0, 1, 1, 0, 1, 1))) ; ! ADJARRDIM, 93 ! ADJUSTABLE ARRAY DIMENSION ERROR
276 0519 1
277 0520 1
278 0521 1 ! EXTERNAL REFERENCES:
279 0522 1
280 0523 1
281 0524 1 EXTERNAL ROUTINE
282 0525 1 FOR$ERRSNS_SAV : NOVALUE, ! Save FORTRAN error info for ERRSNS
283 0526 1 ! No logical unit associated with it.
284 0527 1 FOR$INIT_ERRSET: NOVALUE, ! Pass recording routine addr
285 0528 1 LIB$FIXUP_FLT, ! Fixup reserved floating operands
286 0529 1 LIB$SIM_TRAP, ! Simulate floating traps
287 0530 1 LIB$INITIALIZE; ! Cause LIB$INITIALIZE to be
288 0531 1
289 0532 1 ! linked in so called before main program
290 0533 1 ! causes COM$STARTUP to be called
291 0534 1 ! before main program.
```



```
.. 293      0535 1 ROUTINE COM_STARTUP (      ! Initialize FORTRAN compatibility ERRSET, ERRSET support
.. 294      0536 1      CO_ROUT_INIT,      !   Atr. of co-routine entry in LIB$INITIALIZE
.. 295      0537 1      CLI_CO_ROUT)      !   Atr. of CLI co-routine
.. 296      0538 1      =      !   Value returned is main program completion code
.. 297      0539 1
.. 298      0540 1
.. 299      0541 1 ++
.. 300      0542 1 FUNCTIONAL DESCRIPTION:
.. 301      0543 1      It establishes a ERRSET/ERRSET default handler.
.. 302      0544 1      Next, it calls FOR$INIT_ERRSET, a routine in the shared
.. 303      0545 1      RTL, to give it the address of RECORD_ERROR. This will be called
.. 304      0546 1      whenever an I/O error occurs that is trapped by error handling
.. 305      0547 1      so that we know about all errors, not just the untrapped ones.
.. 306      0548 1      Then it performs a co-routine call-back to LIB$INITIALIZE
.. 307      0549 1      which keeps the handler on the stack before the main program.
.. 308      0550 1
.. 309      0551 1 FORMAL PARAMETERS:
.. 310      0552 1
.. 311      0553 1      co_rout_init      Atr. of a procedure to be called in order
.. 312      0554 1      to affect a co-routine linkage with the
.. 313      0555 1      caller (LIB$INITIALIZE).
.. 314      0556 1      cli_co_rout      Atr. of CLI co-routine
.. 315      0557 1      ..      Any other arguments passed to main programs
.. 316      0558 1
.. 317      0559 1 IMPLICIT INPUTS:
.. 318      0560 1
.. 319      0561 1      NONE
.. 320      0562 1
.. 321      0563 1 IMPLICIT OUTPUTS:
.. 322      0564 1
.. 323      0565 1      NONE
.. 324      0566 1
.. 325      0567 1 ROUTINE VALUE:
.. 326      0568 1 COMPLETION CODES:
.. 327      0569 1
.. 328      0570 1      The completion code returned by the main program
.. 329      0571 1
.. 330      0572 1 SIDE EFFECTS:
.. 331      0573 1
.. 332      0574 1      Sets up a handler and does a co-routine call-back using co_rout_init.
.. 333      0575 1 --
.. 334      0576 1
.. 335      0577 2 BEGIN
.. 336      0578 2
.. 337      0579 2 ENABLE
.. 338      0580 2      COM_HANDLER;      ! Establish language independent handler
.. 339      0581 2
.. 340      0582 2 ++
.. 341      0583 2      Call FOR$INIT_ERRSET and pass it the address of RECORD_ERROR. The
.. 342      0584 2      shared RTL will call RECORD_ERROR whenever it finds an I/O error that
.. 343      0585 2      is to be unwound, so that it never gets to our handler. Therefore,
.. 344      0586 2      our table always knows which errors have occurred.
.. 345      0587 2      --
.. 346      0588 2
.. 347      0589 2 FOR$INIT_ERRSET (RECORD_ERROR);
.. 348      0590 2
.. 349      0591 2 ++
```

```
: 350      0592 2      ! Perform co-routine call-back to caller (LIB$INITIALIZE)
: 351      0593 2      ! which will call any other library and user initialization procedures
: 352      0594 2      ! and then call the main program.
: 353      0595 2      ! When the main program return, return its completion status to caller
: 354      0596 2      ! which will get back to debugger or CLI.
: 355      0597 2      !
: 356      0598 2
: 357      0599 2      RETURN (.CO_ROUT_INIT) ();
: 358      0600 1      END;
```

! End of COM\_STARTUP routine

```
:
:
: .TITLE  COM$ERRSET_TST FORTRAN compatibility error set
:          and test
: .IDENT  \1-024\
: .PSECT  _F4PCOMPAT$DATA,NOEXE, PIC,2
:
:          0000000F 00000 COM$ERRORCOUNT:
:          4F 00 00004 COM$ERR_TAB:
:          00# 00006
: 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 00015
: 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 00024
: 6F 4F 6D 00 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 4F 00033
: 2B 00 2B 2B 2B 2B 2B 00 6F 4F 4F 00 6F 69 4F 00042
:          2B 2B 2B 00 00 2B 2B 2B 0B 0B 00 00 2B 00051
:
:          00# 0005E
:          2B 00061
:
:          .BYTE 0[15]
:          .BYTE 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, -
:          .BYTE 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, -
:          .BYTE 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, -
:          .BYTE 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, 79, -
:          .BYTE 79, 0, 109, 79, 111, 79, 105, 111, 0, 79, -
:          .BYTE 79, 111, 0, 43, 43, 43, 43, 43, 0, 43, -
:          .BYTE 43, 0, 0, 11, 11, 43, 43, 43, 0, 0, 43, -
:          .BYTE 43, 43
:          .BYTE 0[3]
:          .BYTE 43
:
: .PSECT  LIB$INITIALIZE,NOWRT,NOEXE, GBL,2
:
:          00000000' 00000 P.AAA: .ADDRESS COM_STARTUP
:
:          VECT=
:          P.AAA
:          .EXTRN FOR$ERRSNS SAV
:          .EXTRN FOR$INIT_ERRSET
:          .EXTRN LIB$FIXUP_FLT, LIB$SIM_TRAP
:          .EXTRN LIB$INITIALIZE
:
: .PSECT  _F4PCOMPAT$CODE,NOWRT, SHR, PIC,2
:
:          0000 00000 COM_STARTUP:
:          .WORD Save nothing
:          MOVAL 1$, (FP)
:          PUSHAB RECORD ERROR
:          CALLS #1, FOR$INIT_ERRSET
:          CALLS #0, @CO_ROUT_INIT
:          RET
:          .WORD Save nothing
:          CLRL -(SP)
:          PUSHL SP
:          MOVQ 4(AP), -(SP)
:          CALLS #3, COM_HANDLER
:
:          6D 0011 CF DE 00002
:          0000V CF 9F 00007
:          00000000G 00 01 FB 0000B
:          04 BC 00 FB 00012
:          04 00016
:          0000 00017 1$:
:          7E D4 00019
:          5E DD 0001B
:          0000V 7E 04 AC 7D 0001D
:          CF 03 FB 00021
```

: 0535  
: 0577  
: 0589  
: 0599  
: 0600  
: 0577



COM\$ERRSET\_TST FORTRAN compatibility error set and test  
1-024

8 3  
16-Sep-1984 00:11:31  
14-Sep-1984 12:31:34

VAX-11 Bliss-32 V4.0-742  
[FORRTL.SRC]COMSETST.B32;1

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(3)

04 00026

RET

:

; Routine Size: 39 bytes, Routine Base: \_F4PCOMPAT\$CODE + 0000

```
360 0601 1 ROUTINE COM_HANDLER (
361 0602 1     SIG_ARGS_ADR,
362 0603 1     MCH_ARGS_ADR)
363 0604 1     =
364 0605 1
365 0606 1
366 0607 1 ++
367 0608 1 FUNCTIONAL DESCRIPTION:
368 0609 1     COM_HANDLER performs default error handling
369 0610 1     which creates an environment compatible with the PDP-11
370 0611 1     FORTRAN IV-PLUS error environment.
371 0612 1     This environment is only created if the user has a:
372 0613 1     The actions taken depends on the conditon code being signaled:
373 0614 1
374 0615 1     SSS_UNWIND      Just return and keep unwinding.
375 0616 1     SSS_SSFAIL      Return SSS_CONTINUE so O.S. caller
376 0617 1                  can check error status at call site.
377 0618 1     SSS_ROPRAND      Fixup floating/double operand by calling LIB$FIXUP FLT.
378 0619 1     SSS_FLTUVF_F...SSS_FLTUND_F Convert to trap by calling LIB$SIM_TRAP.
379 0620 1     SSS_INTUVF...SSS_SOBRNG Convert to FORTRAN error number from
380 0621 1                  arithmetic trap condition value.
381 0622 1
382 0623 1     If a math error which returns a reserved operand, change it to +0.0 and continue
383 0624 1     execution with no message printed.
384 0625 1     If not a FOR$ error, save error info for ERRSNS
385 0626 1     (If a FOR$ error, FOR$ERRSNS_SAV already called when signaled).
386 0627 1     Determine FORTRAN error number from condition value.
387 0628 1     Use 1 (NOT FORTRAN SPECIFIC ERROR) if not a FORTRAN specific error.
388 0629 1     Flag that error number has had an occurrence (for ERRST)
389 0630 1     If error can never continue or ERR=, set severity to SEVERE and resignal (which EXITs).
390 0631 1     If error is ERR= type, set severity to SEVERE and resignal (which EXITs),
391 0632 1     since ERR= transfer would already have taken place if present.
392 0633 1     If error wants to be counted, decrement image error count.
393 0634 1     If exceed limit, set severity to SEVERE and resignal (which EXITs).
394 0635 1     If error is to continue, set severity to ERROR, else to SEVERE.
395 0636 1     If error is to be logged, resignal else continue.
396 0637 1
397 0638 1 FORMAL PARAMETERS:
398 0639 1
399 0640 1     SIG_ARGS_ADR.ml.ra      Adr. of signal arg list
400 0641 1     MCH_ARGS_ADR.ml.ra      Adr. of mechanism arg list
401 0642 1
402 0643 1 IMPLICIT INPUTS:
403 0644 1
404 0645 1     NONE
405 0646 1
406 0647 1 IMPLICIT OUTPUTS:
407 0648 1
408 0649 1     Decrements OWN count of no. of continuable error remaining before EXIT (ERROR_LIMIT).
409 0650 1
410 0651 1 ROUTINE VALUE:
411 0652 1 COMPLETION CODES:
412 0653 1
413 0654 1     SSS_CONTINUE if signaled code was SSS_SSFAIL or error is to be continued without logging.
414 0655 1     SSS_RESIGNAL otherwise.
415 0656 1
416 0657 1 SIDE EFFECTS:
```



```
417 0658 1 |
418 0659 1 |      Signaled condition value is changed to ERROR or SEVERE
419 0660 1 |      in order to cause image to continue or EXIT after printing message.
420 0661 1 |
421 0662 1 |
422 0663 2 |
423 0664 2 |      BEGIN
424 0665 2 |
425 0666 2 |      LOCAL
426 0667 2 |          FORT_ERR_NO;                ! FORTRAN error number
427 0668 2 |
428 0669 2 |      MAP
429 0670 2 |          SIG_ARGS_ADR : REF BLOCK [8, BYTE],    ! SIGNAL arg list
430 0671 2 |          MCH_ARGS_ADR : REF BLOCK [5, BYTE];    ! mechanism arg list
431 0672 2 |
432 0673 2 |      !+
433 0674 2 |      ! Check for unwinding since handler gets called when it does an unwind.
434 0675 2 |      ! Just return to continue unwinding, since nothing to do.
435 0676 2 |      !-
436 0677 2 |      IF .SIG_ARGS_ADR [CHFSL_SIG_NAME] EQL SS$_UNWIND THEN RETURN SS$_NORMAL;
437 0678 2 |
438 0679 2 |      !+
439 0680 2 |      ! Check if this is a system service failure exception (i.e., SSFAIL mode
440 0681 2 |      ! set by user in violation of modularity standards). If yes just return
441 0682 2 |      ! SS$_CONTINUE status to condition handling facility which will return to the
442 0683 2 |      ! OTS-call-site to operating system which will check error code returned in R0.
443 0684 2 |      !-
444 0685 2 |
445 0686 2 |      IF .SIG_ARGS_ADR [CHFSL_SIG_NAME] EQL SS$_SSFAIL THEN RETURN SS$_CONTINUE;
446 0687 2 |
447 0688 2 |      !+
448 0689 2 |      ! If signal is SS$_ROPRAND (reserved operand fault),
449 0690 2 |      ! go fixup if floating point by setting operand to +0.0.
450 0691 2 |      ! Then continue execution without a message. Do not convert this error
451 0692 2 |      ! to a FORTRAN error # since this error didn't happen on the PDP-11.
452 0693 2 |      !-
453 0694 2 |
454 0695 2 |      IF LIB$FIXUP_FLT (.SIG_ARGS_ADR, .MCH_ARGS_ADR) THEN RETURN SS$_CONTINUE;
455 0696 2 |
456 0697 2 |      !+
457 0698 2 |      ! If this is a floating fault, convert it to a trap by calling
458 0699 2 |      ! LIB$SIM_TRAP. LIB$SIM_TRAP will return SS$_RESIGNAL if this is
459 0700 2 |      ! not a floating fault, else it will simulate a trap and 'resignal'.
460 0701 2 |      ! If this happens, control will never return here. The return
461 0702 2 |      ! of SS$_CONTINUE is just to keep BLISS happy - it will never execute.
462 0703 2 |      !-
463 0704 2 |
464 0705 2 |      IF LIB$SIM_TRAP (.SIG_ARGS_ADR, .MCH_ARGS_ADR) THEN RETURN SS$_CONTINUE;
465 0706 2 |
466 0707 2 |      !+
467 0708 2 |      ! If this is a math library error which is about to return a reserved operand,
468 0709 2 |      ! convert R0/R1 to +0.0 in mechanism arg list so user program
469 0710 2 |      ! will get the same function value as on the PDP-11.
470 0711 2 |      !-
471 0712 2 |
472 0713 2 |      IF .STS_FAC_NO EQL MTH$K_FAC_NO
473 0714 2 |      THEN
```

```
474 0715 2
475 0716 2
476 0717 2
477 0718 2
478 0719 2
479 0720 2
480 0721 2
481 0722 2
482 0723 2
483 0724 2
484 0725 2
485 0726 2
486 0727 2
487 0728 2
488 0729 2
489 0730 2
490 0731 2
491 0732 2
492 0733 2
493 0734 2
494 0735 2
495 0736 2
496 0737 2
497 0738 2
498 0739 2
499 0740 2
500 0741 2
501 0742 2
502 0743 2
503 0744 2
504 0745 2
505 0746 2
506 0747 2
507 0748 2
508 0749 2
509 0750 2
510 0751 2
511 0752 2
512 0753 2
513 0754 2
514 0755 2
515 0756 2
516 0757 2
517 0758 2
518 0759 2
519 0760 2
520 0761 2
521 0762 2
522 0763 2
523 0764 2
524 0765 2
525 0766 2
526 0767 2
527 0768 2
528 0769 2
529 0770 2
530 0771 2

CASE .STS_CODE FROM MTH$K_UNDEXP TO MTH$K_FLOOVEMAT OF
SET
[ MTH$K_UNDEXP, MTH$K_LOGZERNEG, MTH$K_SQURDNEG, MTH$K_SIGLOSMAT, MTH$K_FLOOVEMAT ] :
BEGIN
MCH_ARGS_ADR [CH$SL_MCH_SAVRO] = 0;
MCH_ARGS_ADR [CH$SL_MCH_SAVR1] = 0;
END;

[ INRANGE ] :
: ! do nothing

[ OUTRANGE ] :
: ! do nothing
TES;

!+
! If this is an arithmetic trap error, map to FORTRAN error number.
! Condition values are: INTOVF, INTDIV, FLTQVF, FLTDIV, FLTUND, _DEVOFV, _SUBRNG.
! and are assumed to be consecutive and in ascending order according
! to hardware trap number. Trap codes 1:5 map to error 70:74
! and trap code 7 maps to error 77. Other codes map to error 1.
!-

IF .STS_COND_ID GEQU SS$_INTOVF^-S_SEVERITY AND .STS_COND_ID LEQU SS$_SUBRNG^-S_SEVERITY
THEN
BEGIN
BIND
TRAN = UPLIT BYTE(70, 71, 72, 73, 74, 1, 77);

MAP
TRAN : VECTOR [7, BYTE];

FORT_ERR_NO = .TRAN [.STS_COND_ID - (SS$_INTOVF^-S_SEVERITY)];
END
ELSE
!+
! Setup FORTRAN error number and check range for index into error table.
! If out of range, map to error 1 (NOT FORTRAN SPECIFIC ERROR)
!-

FORT_ERR_NO = (SELECTONEU .STS_FAC_NO OF
SET
[ FOR$K_FAC_NO ] : .STS_CODE; ! FOR$ errors
[ MTH$K_FAC_NO ] : .STS_CODE; ! MTH$ errors
[ OTHERWISE ] : FOR$K_NOTFORSPE; ! other, use error code 1
TES); ! NOT FORTRAN SPECIFIC ERROR

!+
! If error table has no bits set for this error, also map to 1
! since error is not defined.
!-

IF .COM$ERR_TAB [.FORT_ERR_NO, B_EC_ANY] EQL 0 THEN FORT_ERR_NO = FOR$K_NOTFORSPE;
```



```
531 0772 2
532 0773 2
533 0774 2
534 0775 2
535 0776 2
536 0777 2
537 0778 2
538 0779 2
539 0780 2
540 0781 2
541 0782 2
542 0783 2
543 0784 2
544 0785 2
545 0786 2
546 0787 2
547 0788 2
548 0789 2
549 0790 2
550 0791 2
551 0792 2
552 0793 2
553 0794 2
554 0795 2
555 0796 2
556 0797 2
557 0798 2
558 0799 2
559 0800 2
560 0801 2
561 0802 2
562 0803 2
563 0804 2
564 0805 2
565 0806 2
566 0807 2
567 0808 2
568 0809 2
569 0810 2
570 0811 2
571 0812 2
572 0813 2
573 0814 2
574 0815 2
575 0816 2
576 0817 2
577 0818 2
578 0819 2
579 0820 2
580 0821 2
581 0822 2
582 0823 2
583 0824 2
584 0825 2
585 0826 2
586 0827 2
587 0828 2

!+
Save error info for ERRSNS if this error is not FOR$ error.
(FOR$ errors already called FOR$ERRSNS_SAV when error was signaled).
-

IF .STS_FAC_NO NEQ FOR$K_FAC_NO
THEN
FOR$ERRSNS_SAV (.FORT_ERR_NO, 0, 0, 0,
.SIG_ARGS_ADR [CHF$1_SIG_NAME]);

!+
Flag that this FORTRAN error number happened for subsequent CALL ERRST
-

COM$ERR_TAB [.FORT_ERR_NO, V_EC_OCCURRED] = 1;

!+
If this error can never continue (or ERR=) or continue type
is ERR= (if present in I/O statement), set severity to SEVERE and resignal.
Note: if continue type is ERR=, user did not supply if control
gets here to default condition handler setup before main program called.
-

IF NOT .COM$ERR_TAB [.FORT_ERR_NO, V_EC_CONTINUE] OR .COM$ERR_TAB [.FORT_ERR_NO, V_EC_CONT_TYPE]
THEN
BEGIN
IF .STS_FAC_NO EQL FOR$K_FAC_NO
THEN
STS_SEVERITY = ST$K_SEVERE;
RETURN $$_RESIGNAL
END;

!+
If this error wants to be counted, decrement image error count limit.
-

IF .COM$ERR_TAB [.FORT_ERR_NO, V_EC_COUNT]
THEN
BEGIN
COM$ERRORCOUNT = .COM$ERRORCOUNT - 1;

!+
If error limit goes to 0, set error severity
to SEVERE and resignal so that image exits after printing message.
-

IF .COM$ERRORCOUNT LEQ 0
THEN
BEGIN
STS_SEVERITY = ST$K_SEVERE;
RETURN $$_RESIGNAL
END;

END;

!+
```

```
588      0829 2      ! If here, error is to continue (V_EC CONTINUE = 0),
589      0830      ! set severity to ERROR so continue if resigaled (ie if logged).
590      0831      -
591      0832      STS_SEVERITY = STS$K_ERROR;
592      0833
593      0834
594      0835      !
595      0836      ! If this error is to be logged, log it by resignaling and continue image.
596      0837      ! Otherwise just continue image (without resignaling so no message).
597      0838      -
598      0839
599      0840      IF .COM$ERR_TAB [.FORT_ERR_NO, V_EC_LOG] THEN RETURN SS$RESIGNAL ELSE RETURN SS$CONTINUE
600      0841
601      0842 1      END;
                                ! End of COM_HANDLER
```

4D 01 4A 49 48 47 46 00027 P.AAB: .BYTE 70, 71, 72, 73, 74, 1, 77 ;

TRAN= P.AAB

```
                                003C 00000 COM_HANDLER:
                                .WORD Save R2,R3,R4,R5
55 00000000' EF 9E 00002 MOVAB COM$ERR_TAB, R5 : 0601
53      04 AC D0 00009 MOVL SIG_ARGS_ADR, R5 : 0677
54      04 A3 9E 0000D MOVAB 4(R3), R4
00000920 8F 64 D1 00011 CMPL (R4), #2336
0000045C 8F 07 13 00018 BEQL 1$
00000000G 8F 64 D1 0001A CMPL (R4), #1116 : 0686
52      08 03 12 00021 1$: BNEQ 3$
00DF 31 00023 2$: BRW 18$
52      08 AC D0 00026 3$: MOVL MCH_ARGS_ADR, R2 : 0695
53      DD 0002A PUSHL R2
53      DD 0002C PUSHL R3
00000000G 00 02 FB 0002E CALLS #2, LIB$FIXUP_FLT
EB 50 E8 00035 BLBS R0, 2$
52      DD 00038 PUSHL R2 : 0705
53      DD 0003A PUSHL R3
00000000G 00 02 FB 0003C CALLS #2, LIB$SIM_TRAP
DD 50 E8 00043 BLBS R0, 2$
16      02 A4 0C 00 ED 00046 CMPZV #0, #12, 2(R4), #22 : 0713
50      64 0C 03 EF 0004E EXTZV #3, #12, (R4), R0 : 0716
0013      06 00000052 8F 50 CF 00053 CASEL R0, #82, #6
0010 0010 0010 0010 0005B 4$: .WORD 5$-4$, -
0013 00063 5$-4$, -
5$-4$, -
6$-4$, -
6$-4$, -
5$-4$, -
5$-4$, -
03 11 00069 BRB 6$
0C A2 7C 0006B 5$: CLRQ 12(R2) : 0721
03 ED 0006E 6$: CMPZV #3, #25, (R4), #143 : 0739
18 1F 00077 BLSSU 7$
03 ED 00079 CMPZV #3, #25, (R4), #149
```

50	64	19	0D 1A 00082	BGTRU	7\$		
		53	03 EF 00084	EXTZV	#3, #25, (R4), R0		0749
			FEDC CF40 9A 00089	MOVZBL	TRAN-143[R0], FORT_ERR_NO		
18	02	A4	1A 11 0008F	BRB	10\$		0739
		0C	00 ED 00091 7\$:	CMPZV	#0, #12, 2(R4), #24		0760
16	02	A4	08 13 00097	BEQL	8\$		
		0C	00 ED 00099	CMPZV	#0, #12, 2(R4), #22		0761
53	64	0C	07 12 0009F	BNEQ	9\$		
			03 EF 000A1 8\$:	EXTZV	#3, #12, (R4), FORT_ERR_NO		
		53	03 11 000A6	BRB	10\$		
			01 D0 000A8 9\$:	MOVL	#1, FORT_ERR_NO		0762
			6543 95 000AB 10\$:	TSTB	COM\$ERR_TAB[FORT_ERR_NO]		0771
			03 12 000AE	BNEQ	11\$		
18	02	A4	01 D0 000B0	MOVL	#1, FORT_ERR_NO		
		0C	00 ED 000B3 11\$:	CMPZV	#0, #12, 2(R4), #24		0778
			0F 13 000B9	BEQL	12\$		
			64 DD 000BB	PUSHL	(R4)		0781
			7E 7C 000BD	CLRQ	-(SP)		0780
			7E D4 000BF	CLRL	-(SP)		
			53 DD 000C1	PUSHL	FORT_ERR_NO		
		00	05 FB 000C3	CALLS	#5, FOR\$ERRSNS_SAV		
	50	53	55 C1 000CA 12\$:	ADDL3	R5, FORT_ERR_NO, R0		0787
		60	8F 88 000CE	BISB2	#128, (R0)		
		04	60 E9 000D2	BLBC	(R0), 13\$		0796
		60	02 E1 000D5	BBC	#2, (R0), 14\$		
18	02	A4	00 ED 000D9 13\$:	CMPZV	#0, #12, 2(R4), #24		0799
		0C	1E 12 000DF	BNEQ	17\$		
			0C 11 000E1	BRB	15\$		0801
		0F	01 E1 000E3 14\$:	BBC	#1, (R0), 16\$		0809
		60	A5 D7 000E7	DECL	COM\$ERRORCOUNT		0812
			FC A5 D5 000EA	TSTL	COM\$ERRORCOUNT		0819
			FC 07 14 000ED	BGTR	16\$		
64	03	00	04 F0 000EF 15\$:	INSV	#4, #0, #3, (R4)		0822
			09 11 000F4	BRB	17\$		0823
64	03	00	02 F0 000F6 16\$:	INSV	#2, #0, #3, (R4)		0833
	06	60	03 E1 000FB	BBC	#3, (R0), 18\$		0840
		50	0918 8F 3C 000FF 17\$:	MOVZWL	#2328, R0		
			04 00104	RET			
		50	01 D0 00105 18\$:	MOVL	#1, R0		
			04 00108	RET			0842

; Routine Size: 265 bytes, Routine Base: \_F4PCOMPAT\$CODE + 002E



```
603 0843 1 %SBTTL'RECORD_ERROR'
604 0844 1 ROUTINE RECORD_ERROR (
605 0845 1   ERROR_NUMBER
606 0846 1   ): NOVALUE =
607 0847 1
608 0848 1 ++
609 0849 1 FUNCTIONAL DESCRIPTION:
610 0850 1
611 0851 1   This routine is called by FOR$ERRSNS_SAV in the shared RTL to
612 0852 1   record that an I/O error occurred. Because an error can get
613 0853 1   trapped by ERR=, END= or IOSTAT=, COM HANDLER doesn't see all
614 0854 1   errors. This mechanism ensures that ERRST will always know
615 0855 1   that an error occurred. Note that COM STARTUP passes the address
616 0856 1   of this routine to FOR$INIT_ERRSET, which stores it for later use.
617 0857 1
618 0858 1 FORMAL PARAMETERS:
619 0859 1
620 0860 1   ERROR_NUMBER   - The FORTRAN error number of the error that
621 0861 1                   occurred.
622 0862 1
623 0863 1 IMPLICIT INPUTS:
624 0864 1
625 0865 1   NONE
626 0866 1
627 0867 1 IMPLICIT OUTPUTS:
628 0868 1
629 0869 1   COM$ERR_TAB
630 0870 1
631 0871 1 ROUTINE VALUE:
632 0872 1
633 0873 1   NONE
634 0874 1
635 0875 1 SIDE EFFECTS:
636 0876 1
637 0877 1   NONE
638 0878 1 --
639 0879 1
640 0880 2 BEGIN
641 0881 2
642 0882 2   !+
643 0883 2   ! Flag that this FORTRAN error number happened for subsequent CALL ERRST
644 0884 2   !-
645 0885 2
646 0886 2   COM$ERR_TAB [.ERROR_NUMBER, V_EC_OCCURRED] = 1;
647 0887 2
648 0888 2 RETURN;
649 0889 2
650 0890 1 END;                                     ! End of RECORD_ERROR
```

```
0000 00000 RECORD_ERROR:
          50 00000000' EF 9E 00002   .WORD   Save nothing
04 BC40      80 8F 88 00009   MOVAB   COM$ERR_TAB, R0
                                BISB2   #128, @ERROR_NUMBER[R0]
```

```
: 0844
: 0886
:
```

COM\$ERRSET\_TST FORTRAN compatibility error set and test  
1-024 RECORD\_ERROR

J 3  
16-Sep-1984 00:11:31  
14-Sep-1984 12:31:34

VAX-11 Bliss-32 V4.0-742  
[FORRTL.SRC]COMSETST.B32;1

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(5)

04 0000F

RET

; 0890

; Routine Size: 16 bytes, Routine Base: \_F4PCOMPAT\$CODE + 0137

; 651 0891 1 END  
; 652 0892 1  
; 653 0893 0 ELUDOM

! End of module

# PSECT SUMMARY

Name	Bytes	Attributes
LIB\$INITIALIZE	4	NOVEC,NOWRT, RD ,NOEXE,NOSHR, GBL, REL, CON,NOPI,ALIGN(2)
_F4PCOMPAT\$DATA	98	NOVEC, WRT, RD ,NOEXE,NOSHR, LCL, REL, CON, PIC,ALIGN(2)
_F4PCOMPAT\$CODE	327	NOVEC,NOWRT, RD , EXE, SHR, LCL, REL, CON, PIC,ALIGN(2)

# Library Statistics

File	----- Total	Symbols Loaded	----- Percent	Pages Mapped	Processing Time
_\$255\$DUA28:[SYSLIB]STARLET.L32;1	9776	16	0	581	00:01.0

# COMMAND QUALIFIERS

; BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/NOTRACE/LIS=LIS\$:COMSETST/OBJ=OBJ\$:COMSETST MSRC\$:COMSETST/UPDATE=(ENH\$:COMSETST)

; Size: 320 code + 109 data bytes  
; Run Time: 00:15.1  
; Elapsed Time: 00:44.8  
; Lines/CPU Min: 3543  
; Lexemes/CPU-Min: 28222  
; Memory Used: 117 pages  
; Compilation Complete



0179 AH-BT13A-SE  
VAX/VMS V4.0

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LIS

FORCLOSE  
LIS

FORDECOMP  
LIS

FORDELETE  
LIS

COMRAD50  
LIS

COMUSEREX  
LIS

FORBITOPS  
LIS

FORDEFINE  
LIS

FORBACKSP  
LIS

FORDISPA  
LIS

FORCUTR  
LIS